VPA PERMIT PROGRAM FACT SHEET

This document gives pertinent information concerning the VPA permit listed below. This permit is for disposal of municipal wastewater through irrigation of effluent originating from an 11,036 gpd sewage treatment plant onto a 5.2-acre driving range at a private golf course.

1. FacilityName and Address
   Bristow Manor Golf Club WWTP
   11507 Valley View Drive
   Bristow, VA 22013

   Legal Name of Owner and Address
   Bristow Manor Partnership
   9058 Copeland Parkway
   Bristow, VA 20136

   County: Prince William

2. VPA Permit No.: VPA00012

3. SIC Code(s): 4952

4. Facility Contact
   Name: Grant Friend
   Title: Owner's Representative
   Telephone No.: 703-366-3689

5. Permit Application Information:

Application submitted by:	Grant Friend on behalf of the Bristow Manor Partnership
Application receipt date:	07/25/2014
Additional information requested:	9/18/2014; 11/14/2014
Additional information received:	9/9/2014 (Revised form and metals sampling results from the laboratory); 10/14/2014; 10/23/2014 (Soil Sampling Results); 12/8/2014; 12/9/2014 (Cadmium Results); 12/15/2014 (Partnership Agreement) 1/26/2015
Application administratively complete date	07/25/2014

6. Permit Processing Information:

DEQ Regional Office:		DEQ-NRO
Site Inspection performed by:		
Date of site inspection :		
Date of public meeting for permit application:		NA
Permit drafted by:		Anna Westernik
Date permit drafted:		TBD
Draft permit reviewed by:		Doug Frasier; Bryant Thomas
Date draft permit reviewed:		12/17/2014; 1/26/2015; 4/1/2015
Dates of draft permit public comment period	From:	TBD
	To:	TBD

7. Permit Characterization

Permit Action	Facility	Permit Type
☐ Issuance	☒ Existing facility	☐ Biosolids distribution, marketing, storage, and land application
☒ Reissuance	☐ Proposed facility	☐ Frequent
☐ Revocation and reissuance	☐ Treatment Works	☐ Infrequent
☐ Owner modification	Type	☐ Land application/storage of animal waste
☐ Board initiated modification	☒ Municipal	☒ Land treatment of wastewater
☐ Interim authorization	☐ Industrial	☐ Industrial
☐ Enforcement action	Ownership	☒ Municipal
	☐ Public	☐ Land application of industrial sludge
	☒ Private	☐ Land application of water plant residuals
	☐ Federal	☐ Land application of septage
	☐ State	☐ Water reclamation and reuse

8. Annual permit maintenance fee: $2,215.00

9. Licensed Operator Requirements: IV

10. Reliability Class: I

11. Pollution Management Activity Description.
Wastewater from the Bristow Manor clubhouse and the manor house flows by gravity to a Septic Tank Effluent Pump (STEP) collection system. Wastewater from the remote restroom and 22 single-family residences flows by gravity to individual grinder pump stations. Wastewater from the STEP system and the grinder pumps is pumped to an extended aeration package treatment plant.

After secondary treatment in the extended aeration plant, the wastewater is treated by ultraviolet disinfection and then discharged to a holding pond that does not provide additional treatment. Effluent from the holding pond is pumped to a 5.2-acre spray field (the golf course driving range) for disposal (see **Attachment 1 –** driving range spray field). The soil in the spray field is fill material; the field is planted in fescue/bluegrass.

12. Location Description. Name of Topographic Map: 195A—Nokesville Quadrangle (**Attachment 2**)

The effluent spray irrigation field for the Bristow Manor Golf Course Sewage Treatment Plant is located on the driving range of the golf course on the east side of Valley View Drive. There are no water intakes or significant discharges within a one-mile radius of the site.

13.a **Influent Monitoring Requirements for Wastewater**

Monitoring Point: Before Extended Aeration Plant
Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	INFLUENT LIMITATIONS	MONITORING REQUIREMENTS	
			Frequency	Sample Type
Influent Flow	NA	NL (MGD)	Continuous	Recorded

13.b **Effluent Limitations/Monitoring Requirements for Wastewater**

Monitoring Point: After UV Treatment; Before the Holding Pond
Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
				Frequency	Sample Type
pH [(a)]	1, 3	6.0 S.U. – 9.0 S.U.		1/D	Grab
BOD_5	1, 2, 3	30 ppm (Monthly Average)	60 ppm (Maximum)	1/M	Grab
Total Suspended Solids (TSS)	1	30 ppm (Monthly Average)	60 ppm (Maximum)	1/M	Grab
Oil and Grease	1	NL (ppm)		1/M	Grab
E. coli (Geometric Mean)	1, 5	11 n/100 mL		1/W	Grab
Total Kjeldahl Nitrogen (TKN)	1, 2 ,3	NL (ppm)		1/M	Grab
$NO_2 + NO_3$ as Nitrogen	1, 2,3	NL (ppm)		1/M	Grab
Plant Available Nitrogen	2, 3	NL (lb/acre)		1/M	Calculated
Plant Available Nitrogen (Year to Date) [(b)]	1	NL (lb/acre)		1/M	Calculated
Plant Available Nitrogen (Annual Total) [(b)]	1	NL (lb/acre/year)		1/Y	Calculated
Phosphorus (P_2O_5)	1, 2, 3	NL (ppm)		1/M	Grab
Phosphorus (P_2O_5) (Year to Date) [(c)]	1	NL (lb/acre)		1/M	Calculated
Phosphorus (P_2O_5) (Annual Total) [(c)]	1	NL (lb/acre/year)		1/Y	Calculated
Potassium (K_2O)	1, 3	NL (ppm)		1/M	Grab
Magnesium, Total	1	NL (ppm)		1/M	Grab
Calcium, Total	1	NL (ppm)		1/M	Grab
Sodium, Total	1, 3	NL (ppm)		1/M	Grab
Sodium Adsorption Ratio (SAR) [(d)]	1	NA		1/M	Calculated
Boron, Total	1	NL (ppm)		1/3Y	Grab
Copper, Total	1, 3	NL (ppm)		1/3Y	Grab
Iron, Total	1	NL (ppm)		1/3Y	Grab
Manganese, Total	1, 3	NL (ppm)		1/3Y	Grab
Zinc, Total	1, 3	NL (ppm)		1/3Y	Grab

13.c **Effluent Limitations/Monitoring Requirements for Wastewater**

Monitoring Point: Holding Pond

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS	MONITORING REQUIREMENTS	
			Frequency	Sample Type
Volume in Storage	1	NL (MG)	1/M	Calculated
Holding Pond Freeboard [e]	1, 4	2 ft minimum	1/M	Measured

13.d **Effluent Limitations/Monitoring Requirements for Wastewater**

Monitoring Point: Wastewater After Holding Pond

Effective Dates During the period beginning with the permit's effective date and lasting until the expiration date while withdraw from the pond is occurring.

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS	MONITORING REQUIREMENTS	
			Frequency	Sample Type
Total Residual Chlorine [f]	2, 3	2.0 ppm minimum	1/D	Grab
E. coli (Geometric Mean)	1, 5	11 n/100 mL	1/W	Grab

13.e **Monitoring Requirements for Wastewater Applied to the Spray Field**

Monitoring Point: Spray Field

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date when irrigation is occurring.

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS	MONITORING REQUIREMENTS	
			Frequency	Sample Type
Hourly Irrigation Rate	2, 3	See Special Condition 10	1/D	Calculated
Daily Irrigation Rate	2, 3	See Special Condition 10	1/D	Calculated
Weekly Irrigation Rate	2, 3	See Special Condition 10	1/W	Calculated
Total Volume to Site per Month	2, 3	gal/acre/month	1/M	Calculated
Total Volume to Site per Year	1	gal/acre/year	1/Y	Calculated

13.f **Limitations/Monitoring Requirements for Groundwater**

Monitoring Point: Groundwater Monitoring Wells at Spray Field and Stabilization Pond

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	LIMITATIONS	MONITORING REQUIREMENTS	
			Frequency	Sample Type
Static Water Level [g]	3	NL ft/in	1/3M	Measured
pH [g]	3	NL S.U.	1/3M	Grab
Conductivity [g]	3	NL µmhos/cm	1/3M	Grab
Chloride [g]	3	NL ppm	1/3M	Grab
Nitrate-Nitrite, as N [g]	3	NL ppm	1/3M	Grab
Alkalinity as $CaCO_3$ [g]	3	NL ppm	1/3M	Grab
E. coli [g]	3	NL n/100 mL	1/3M	Grab

The basis for the limitations codes are:

1. Best Professional Judgment
2. 9VAC25-790 (SCAT Regulations)
3. Interim Guidance #01-2005
4. VPA Permit Manual
5. 9VAC25-740 (Water Reclamation and Reuse Regulation)

NA = Not applicable.
NL = No limit; monitor and report.
MGD = Million gallons per day.
S.U. = Standard units.

1/D = Once every day.
1/M = Once every month.
1/W = Once every week.
1/Y = Once every calendar year.
1/3Y = Once every three years.
1/3M = Once every quarter.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

(a) A properly calibrated pH meter shall be used for analysis of the wastewater.
(b) The total loading rate shall not exceed the Plant Available Nitrogen requirements of the chosen crop as documented in the approved Nutrient Management Plan.
(c) The total loading rate shall not exceed the Phosphorus requirements of the chosen crop as documented in the approved Nutrient Management Plan.
(d) Sodium Adsorption Ratio (SAR)

$$SAR = \frac{Na}{\sqrt{0.5\ (Ca + Mg)}}$$

Where: Na = sodium in meq/L

Ca = calcium in meq/L

Mg = magnesium in meq/L

(e) Freeboard shall be reported monthly regardless if a discharge occurs.
(f) Effluent sampling for Total Residual Chlorine (TRC) shall be performed after storage and chlorination. 30 minutes of contact time is required.
(g) Groundwater is to be monitored in accordance with the approved Groundwater Monitoring Plan dated April 2, 2004 or the most recent DEQ-approved Groundwater Monitoring Plan pursuant to Special Condition I.B.19 of the permit. The quarterly sampling frequency shall commence with this permit reissuance. Quarterly sampling is to be conducted for the periods of January 1-March 31, April 1-June 30, July 1-September 30, and October 1-December 31. The results of quarterly analyses are to be submitted with the monthly VPA Monitoring Report submitted on April 10, July 10, October 10, and January 10 for the preceding three month's performance.

14. Special Conditions:

A. Permit Section Part I.B. The TRC limitations were established to ensure adequate disinfection of the treated effluent withdrawn from the Holding Pond. To prevent the risk of human exposure from spray irrigation, minimum chlorine residual must be maintained at the exit of the chlorine contact tank after at least 30 minutes of contact time. No more that 10% of the monthly test results for TRC after 30 minutes of contact time shall be < 2.0 mg/L with any TRC < 0.6 mg/L considered a system failure.

B. General Special Conditions

1) Prohibition of Point Source Discharge. There shall be no discharge of pollutants to surface waters from this operation except in the case of a storm event greater than a 25-year, 24-hour storm.

Basis: VPA Permit Regulation at 9VAC25-32-30.A.

2) 95% Capacity Reopener. Requires all POTWs and PVOTWs to develop and submit a plan of action to DEQ when the monthly average influent flow reaches 95% of the design capacity authorized in the permit for each month of any consecutive three-month period. This facility is a PVOTW.

Basis: VPA Permit Regulation at 9VAC25-32-90.B

3) Indirect Dischargers. Wastewater treatment plants shall provide adequate notice to DEQ of any substantial change in the quantity or quality of pollutants being introduced into the privately or publicly owned treatment works and any anticipated impact the change may have on said treatment works.

Basis: VPA Permit Regulation at 9VAC25-32-90.A.

4) Operation and Maintenance (O&M) Manual Requirement. The permittee shall maintain a current O&M Manual. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

Basis: Code of Virginia at §62.1-44.19
Sewage Collection and Treatment Regulations at 9VAC25-790

5) CTC, CTO Requirement. Requires that all treatment works treating wastewater obtain a Certificate to Construct (CTC) prior to commencing construction and to obtain a Certificate to Operate(CTO) prior to commencing operation of the treatment works.

Basis: Code of Virginia at § 62.1-44.19
Sewage Collection and Treatment Regulations at 9VAC25-790

6) Licensed Operator Requirement. Requirement for the licensure of operators. This facility requires a Class IV operator.

Basis: Code of Virginia at §54.1-2300 et seq.
VPA Permit Regulation at 9VAC25-32-190.
Rules and Regulations for Waterworks and Wastewater Works Operators at 18VAC160-20-10 et seq.

7) Reliability Class. Requires sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet Reliability Class I.

Basis: Sewage Collection and Treatment Regulations at 9VAC25-790

8) Site Specification. Wastewater shall be applied only at the site identified in **Attachment 1**.

Basis: OWPP Interim Guidance Memo 01-2005 – Spray Irrigation and Reuse of Wastewater

9) Seasonal Application and Storage Requirements. The 5.2-acre spray field has a high perched water table as shown in **Attachment 3** (<6 to 12 inches in depth), and the facility has a history of using pump and haul of raw sewage as a means of sewage disposal. Therefore, effluent shall be applied to the 5.2-acre spray field only from April 15 to November 15 of each year. Adequate storage shall be provided to hold effluent during November 16 to April 16 of each year and/or an alternative method of sewage disposal shall be proposed.

This facility shall submit a Plan and Schedule for review and approval to DEQ-NRO in regard to the installation of additional storage and/or an alternative sewage disposal method within 90 days of this permit reissuance date. The approved Plan and Schedule shall be an enforceable part of the permit. Failure to provide adequate storage or proper disposal of sewage effluent during periods when spray irrigation cannot occur shall be deemed a violation of this permit.

Basis: Best Professional Judgment
Sewage Collection and Treatment Regulations at 9VAC25-790-880.F.2

10) Irrigation Scheduling. Application of wastewater to the spray field shall be based on the approved Irrigation Schedule but cannot exceed the maximum application rates of 0.25"/hr., 1"/day, and 2"/week. Within 90 days of the permit reissuance date, the permittee shall provide a plan to DEQ that outlines the scheduling tools to be used in determining irrigation rates and timing.

This permit requires that hydraulic conductivity testing of the spray field soil shall be conducted annually from February 1 to April 15. The testing results shall be used to adjust the irrigation schedule as needed. Results of the hydraulic conductivity testing and changes to the irrigation schedule resulting from the testing shall be submitted with the Monthly Summary Report due on May 10th of each year.

Basis: Best Professional Judgment
Sewage Collection and Treatment Regulations at 9VAC25-790-880.G.9

11) Rainfall Monitoring – Rainfall shall be measured in an open area (a minimum of 25 feet from any structure). Monitoring of rainfall shall be conducted daily at the Bristow Manor Golf Club, and the data shall be submitted with the monitoring report on the 10th of each month. Failure to submit rainfall monitoring data shall be deemed a violation of this permit.

Basis: Best Professional Judgment

12) Nutrient Loading Rate. The 5.2-acre driving range that is used as a spray site is planted in fescue and bluegrass. The 2014 Virginia Department of Conservation Nutrient Management Standards and Criteria (see **Attachment 4**) recommends that an annual rate of 3 to 4 pounds per 1,000 square feet of nitrogen be applied on fairways with intensive management planted in cool season grasses.

The 5.2-acre spray field equates to 226,510 square feet. If 4 pounds of nitrogen per 1,000 square feet were applied to the spray field, a total of 904 pounds of nitrogen could be applied per year.

The annual PAN application rate for the 5.2-acre spray site shall not exceed the maximum annual recommendation of 904 pounds/acre/year as stated in the Department of Conservation and Recreation, Virginia Nutrient Management Standards and Criteria. If the grass grown on the irrigation site is changed, updated PAN application rate information and nitrogen fertilizer recommendations shall be submitted to the nutrient management planner and DEQ-NRO for approval within 90 days of the change.

Application of phosphorus shall be based on plant uptake and shall follow the guidelines of the approved Nutrient Management Plan.

Basis: Virginia Nutrient Management Standards and Criteria, July 2014
Best Professional Judgment

13) Nutrient Management Plan. A Nutrient Management Plan for the golf course compiled by a nutrient management planner certified by the Commonwealth of Virginia shall be submitted to DEQ-NRO within six months of the permit reissuance date. All revisions to the Nutrient Management Plan shall be submitted to DEQ-NRO within one year of plan approval. The Nutrient Management Plan is an enforceable part of the permit; violations of the Nutrient Management Plan that affect the 5.2-acre spray field shall be considered violations of the VPA permit.

Basis: Best Professional Judgment
Sewage Collection and Treatment Regulations at 9VAC25-790.H.5

14) Vegetative Cover. This is a land treatment system that utilizes vegetation and soil to further treat sewage. Therefore, the permittee shall maintain a viable turf cover on the 5.2-acre spray site through liming, fertilizing, reseeding, and weed control as necessary.

Basis: Best Professional Judgment

15) Operational Requirements. To ensure surface water protection, groundwater protection, and public safety, the following shall be required for all land treatment of wastewater:

a. There shall be no application of wastewater to the ground when it is saturated, frozen or covered with ice or snow, and during periods of rainfall.

b. The chosen method of wastewater application shall minimize human contact with the wastewater.

c. Wastewater shall be prevented from coming into contact with drinking fountains, water coolers, or eating surfaces.

d. Application or irrigation systems used for land treatment of wastewater shall be designed, installed, and adjusted to:

1. Provide uniform distribution of wastewater over the land treatment site;

2. Prevent ponding or pooling of wastewater at the land treatment site;

3. Facilitate maintenance and harvesting of the land treatment site and preclude damage to the application or irrigation system from the use of maintenance or harvesting equipment;

4. Prevent aerosol carry-over from the land treatment site to areas beyond the buffer zones described in Part I.C.18.; and

5. Prevent clogging from algae or suspended solids.

e. Any wastewater runoff shall be confined to the land application site.

Basis: Sewage Collection and Treatment Regulations at 9VAC25-790-880.G.9
Current VPA Permit Manual

16) Wind Restriction. Land Application of wastewater shall not occur during winds of sufficient strength to cause overspray or drifting of aerosols into or beyond the buffer zones.

Basis: Current VPA Permit Manual

17) Human and Animal Access. The irrigation site shall be adequately enclosed with suitable fencing and posted to prevent human and animal access. Within 90 days of the permit reissuance date, a Plan and Schedule for fencing and posting the spray site shall be submitted to DEQ-NRO for approval. The fencing and signage shall be installed within 180 days of approval of the Plan and Schedule. The Plan and Schedule shall ensure all fencing and signage is maintained. Failure to adequately install and maintain the signage and fencing is a violation of this permit.

Basis: Sewage Collection and Treatment Regulations at 9VAC25-880.H.3.
Best Professional Judgment

18) Buffer zones. Buffer zones shall be maintained from the site of wastewater application to the features noted below:

BUFFER ZONES	
Buffered Feature	Minimum Distance (feet)
Drinking water supply wells or springs	100
Occupied dwellings	100
Property lines	50
Surface water courses (including dry ditches)	50
All improved roadways	25
Rock outcrops (excludes limestone outcrops)	25
Limestone outcrops	50

Basis: OWPP Interim Guidance Memo 01-2005 – Spray Irrigation and Reuse of Wastewater

19) Groundwater Monitoring. DEQ is authorized to request information needed to determine if the management of pollutants may have possible impacts on the groundwater. Groundwater monitoring for parameters of concern (see Part I.A.6 of the permit) is used in this permit to indicate whether possible holding pond seepage is occurring or whether the irrigation site soil is adequately treating the sewage effluent that is sprayed onto it. Review of groundwater data collected from December 2012 to September 2014 was inconclusive due to changes in the designations of some of the monitoring wells. However, it appears that the level of bacteria in the lower spray field monitoring wells is elevated during periods of irrigation. Additionally, there have been samples collected from the monitoring well below the holding pond that have an elevated level of bacteria. Therefore, it is staff's best professional judgment that groundwater monitoring continue at this facility; however, monitoring shall be at a quarterly frequency. Quarterly sampling is to be conducted for the periods of January 1-March 31, April 1-June 30, July 1-September 30, and October 1-December 31. The results of quarterly analyses are to be submitted for DEQ review with the monthly VPA Monitoring Report submitted on April 10, July 10, October 10, and January 10 for the preceding three month's performance.

Within 180 days of the permit reissuance date, a revised Groundwater Monitoring Plan shall be submitted to DEQ for review and approval. The revised plan shall set forth the steps to be taken by the facility to ensure that the contamination source is eliminated or that the contaminant plume is contained on the property.

Basis: Sewage Collection and Treatment Regulations at 9VAC25-790-880.H.4.
State Water Control Law at § 62.1-1-44.21
Best Professional Judgment

20) Holding Pond Sludge Removal Plan/Holding Pond Liner Study
Due to sporadic occurrences of bacteria in the monitoring wells near the Holding Pond, a Holding Pond Liner study is being required by this permit to ensure that the groundwater and surface water resources are protected from possible holding pond seepage. Additionally, this permit requires that the sludge that has accumulated in the Holding Pond be removed.

Within 90 days of the permit reissuance date, the permittee shall submit to DEQ-NRO for review and approval a Plan and Schedule for removal of sludge from the holding pond. Removal of sludge from the holding pond shall commence within 30 days of the approval date of the Plan and Schedule and shall be completed within 180 days of the approval date of the Plan and Schedule.

Within 90 days of the permit reissuance date, the permittee shall submit to DEQ-NRO for review and approval a Holding Pond Liner Study designed to evaluate the integrity of the holding pond liner that includes a chronological study schedule. If the results of the Hold Pond Liner Study indicate leakage from the facility's holding pond is occurring, the permittee shall submit a Corrective Action Plan within 60 days of being notified by DEQ-NRO. The Corrective Action Plan shall set forth the steps to be taken by the permittee to ensure that the contamination source is eliminated or contained within 100 feet of the boundaries of the holding pond. Based on the extent of the contamination found to be present, a risk analysis may be required. Once approved, this Corrective Action Plan shall become an enforceable part of this permit.

Basis: Best Professional Judgment

21) Freeboard Requirements. All wastewater storage facilities shall maintain two feet of freeboard except during a 25-year, 24-hour storm.

Basis: Best Professional Judgment

22) Berm Maintenance. Maintaining the pond berm will help ensure surface water and groundwater protection. The permittee shall properly maintain the wastewater holding pond berm by mowing, prohibiting tree and shrub establishment, and removing burrowing animals.

Basis: OWPP Interim Guidance Memo 01-2005 – Spray Irrigation and Reuse of Wastewater
Best Professional Judgment

23) Materials Handling/Storage. Materials and waste products are to be stored in such a manner as to prevent their discharge to state waters.

Basis: Current VPA Permit Manual

24) Sludge Management Plan and Reopener. The permittee shall conduct all sewage sludge use or disposal activities in accordance with the approved Sludge Management Plan (SMP). The SMP is an enforceable part of the permit. The permit shall be modified or alternatively revoked and reissued to incorporate limitations/conditions necessitated by substantial changes in sewage sludge use or disposal practices within 90 days of such changes.

Basis: VPA Permit Regulation at 9VAC25-32-100.D

25) Monthly Summary Report. A summary report of the previous month's activities as outlined in Part I.A of the permit shall be prepared and submitted to DEQ-NRO by the 10th day of the following month.

Basis: OWPP Interim Guidance Memo 01-2005 – Spray Irrigation and Reuse of Wastewater
Current VPA Manual
Best Professional Judgment

26) Annual Project Summary Report. An annual project summary report shall be prepared and submitted to DEQ-NRO by February 10th of each year and shall include the following:

a. A summary of the wastewater and groundwater monitoring results as outlined in Part I.A of the permit;

b. The yearly water balance showing inputs to and drawdown from storage and diversion to other means of disposal;

c. The results of hydraulic conductivity testing conducted from February 1 to April 15 of the previous year;

d. Any changes to the irrigation schedule resulting from revised hydraulic conductivity values, a change in storage, or addition of another means of sewage disposal;

e. A description of the wastewater applied to the 5.2-acre spray field during the previous year that includes the annual loading values specified in Part I.A of the permit;

f. Any revisions to the Nutrient Management Plan that would affect the 5.2-acre spray field; and

g. A general statement of facility performance in regard to complying with the Virginia Pollution Abatement Permit requirements.

Basis: Best Professional Judgment
OWPP Interim Guidance Memo 01-2005 – Spray Irrigation and Reuse of Wastewater
Current VPA Manual

27) Report Certification. All monitoring reports submitted to DEQ-NRO shall include a signed VPA monitoring Report Certification.

Basis: VPA Permit Regulation 9VAC25-32-70.

28) Facility Closure Plan. A Facility Closure Plan is needed if the treatment works is permanently closed. A closure plan shall be developed prior to termination of the pollutant management activities covered under this permit. The permittee shall submit the closure plan to DEQ-NRO for review and approval 90 days prior to implementation.

Basis: Current VPA Permit Manual

15.Changes to the Permit from the Previously Issued Permit:

A. Special Conditions:
1) A Holding Pond Liner Study Special Condition has been added.
2) The time period that land application can occur will be changed from March 15 to November 15 of each year to April 15 to November 15 of each year.
3) A Nutrient Management Plan will be required for the entire golf course—not just the spray field. Hence, the Nutrient Management Plan Special condition has been modified and the soil monitoring requirements removed.
4) Application of wastewater to the spray field will be based on the Irrigation Schedule but cannot exceed

the maximum application rates of 0.25"/hr., 1"/day, and 2"/week. The permittee has a requirement to provide a plan to DEQ that outlines the scheduling tools to be used in determining irrigation rates and timing.

5) The special condition that addresses human access to the spray field has been expanded to provide a Plan and Schedule to DEQ to properly enclose the 5.2-acre spray field with adequate fencing to prevent access to the public.
6) The Turf Cover/Mowing of Grass Special Condition has been modified. It is now named the Vegetative Cover Special Condition.
7) The Effluent Application Sites Special Condition has been removed.
8) The Buffer Zones Special Condition has been updated.
9) The Crop Selection Special Condition has been removed since this is a golf course that does not plant produce.
10) The Slope Limitation Special Condition has been removed.
11) The Irrigation Scheduling Special Condition has been modified to require the submittal of updated irrigation scheduling tools and annual hydraulic conductivity testing between February 1 and April 15.

B. Monitoring Requirements:

1) *E. coli* monitoring has replaced fecal coliform monitoring as an indicator of the presence of bacteria in wastewater and groundwater. Additionally, the *E.coli* limit of 11 n/100 mL for wastewater is more stringent than the previous fecal coliform limit of 200 n/100 mL.
2) The groundwater monitoring frequency has been changed from monthly to quarterly.
3) A requirement for chlorination after the storage pond with a minimum of 30 minutes of contact time and a compliance point for *E. coli* and TRC monitoring after the storage pond has been added.
4) TRC monitoring is no longer required after the wastewater treatment plant because ultraviolet disinfection has been added.
5) The majority of effluent monitoring (bacteria, oil and grease, MBAS surfactants, pH, alkalinity, conductivity, total Kjeldahl nitrogen (TKN), nitrate-nitrites as nitrogen, plant available nitrogen (PAN), total phosphorus, total potassium, total sodium, total calcium, sodium absorption ratio (SAR), boron, chloride, molybdenum, copper, cobalt, iron, manganese, nickel, zinc) is now being conducted after secondary treatment—not after the pond. The pond can no longer be considered a stabilization pond that would provide additional sewage treatment.
6) BOD_5 shall be monitored after secondary treatment instead of at the clarifier discharge point.
7) The requirement to monitor ammonia and MBAS surfactants after the stabilization pond has been removed. This is a land application permit; there is not a need to measure the toxicity of ammonia or MBAS surfactants.
8) The requirement for effluent wastewater testing for cadmium, chromium, lead, mercury, and nickel has been removed since the wastewater consists of discharge from domestic sources.
9) Annual hydraulic conductivity monitoring of the spray field soil during February 1 through April 15 will be required to determine movement of water in the soil profile during saturated conditions.
10) The soils monitoring requirements shall be removed.

C. Other

1) The requirement for VELAP Certification of laboratories has been added to Part II of the permit.
2) The option for land applying wastewater on an alternative area of the golf course has been removed. This results in removal of all references to an alternative field and associated special conditions.

16. First Public Notice Date: TBD Second Public Notice Date: TBD

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3837, anna.westernik@deq.virginia.gov. See **Attachment 5** for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

ATTACHMENTS

Attachment 1 Overview of the Driving Range Spray Field

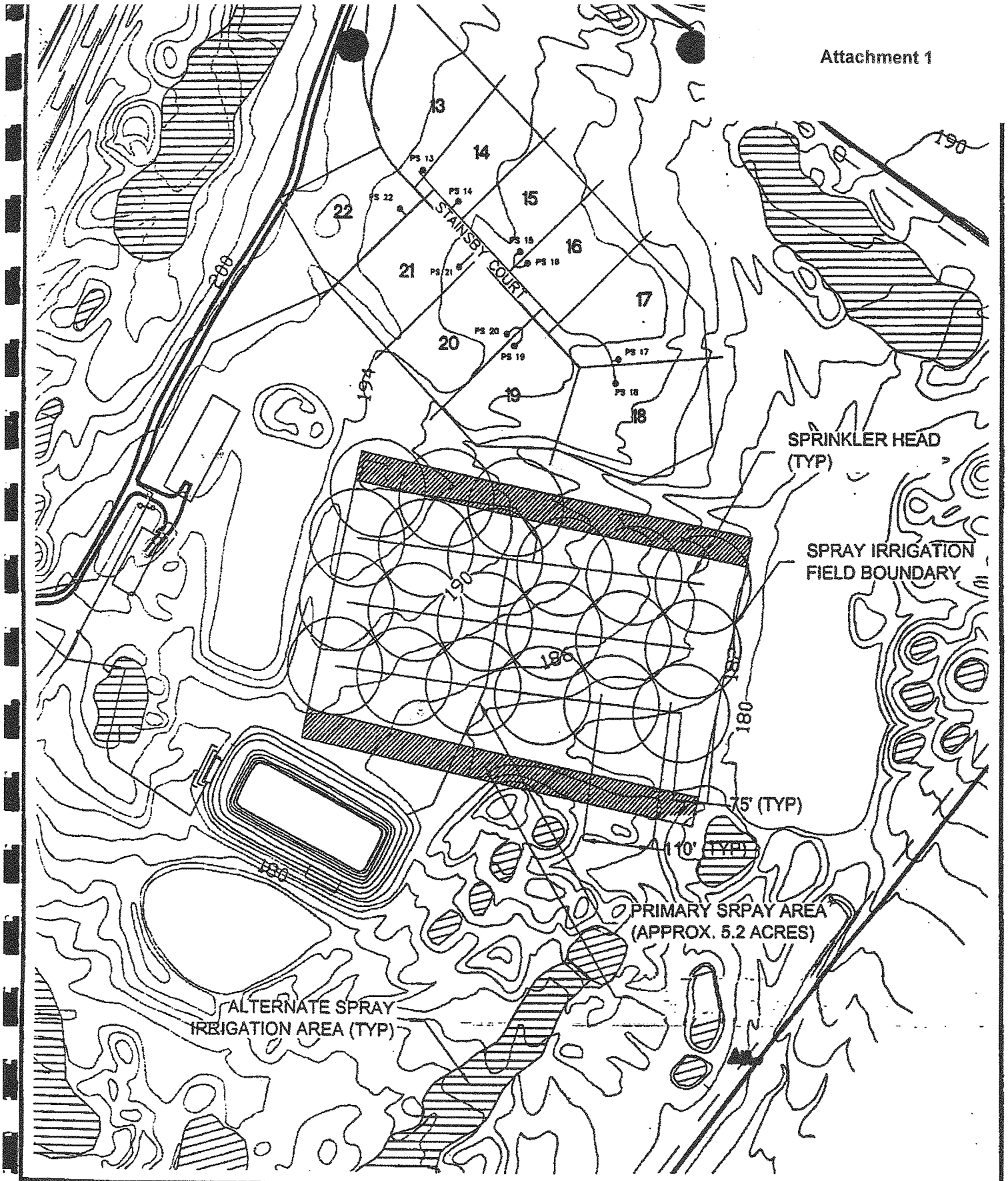
Attachment 2 Topographic May 195A – Nokesville Quadrangle

Attachment 3 Map of Spray Field Showing the Depth to the Perched Water Table

Attachment 4 Excerpt from the 2014 Virginia DCR NMP Standards and Criteria

Attachment 5 Public Notice

Attachment 1



Rickmond Engineering, Inc.
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BRISTOW MANOR
VPA

EXISTING SPRAY AREA

PROJ. NO: 03215
DWG: VICINITY MAP
DATE: 2/20/04
SCALE: 1" = 200'
SECTION II

Attachment 2

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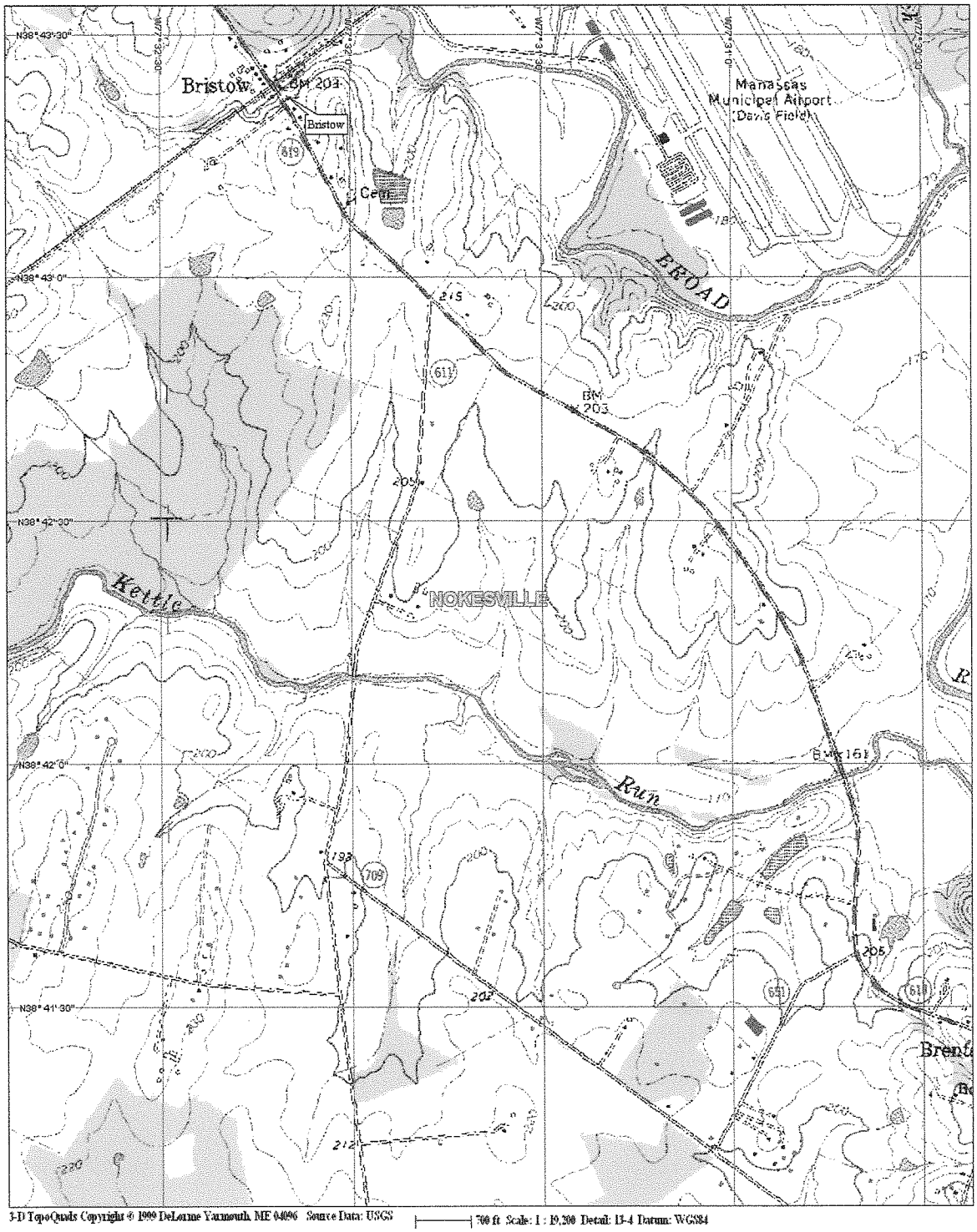
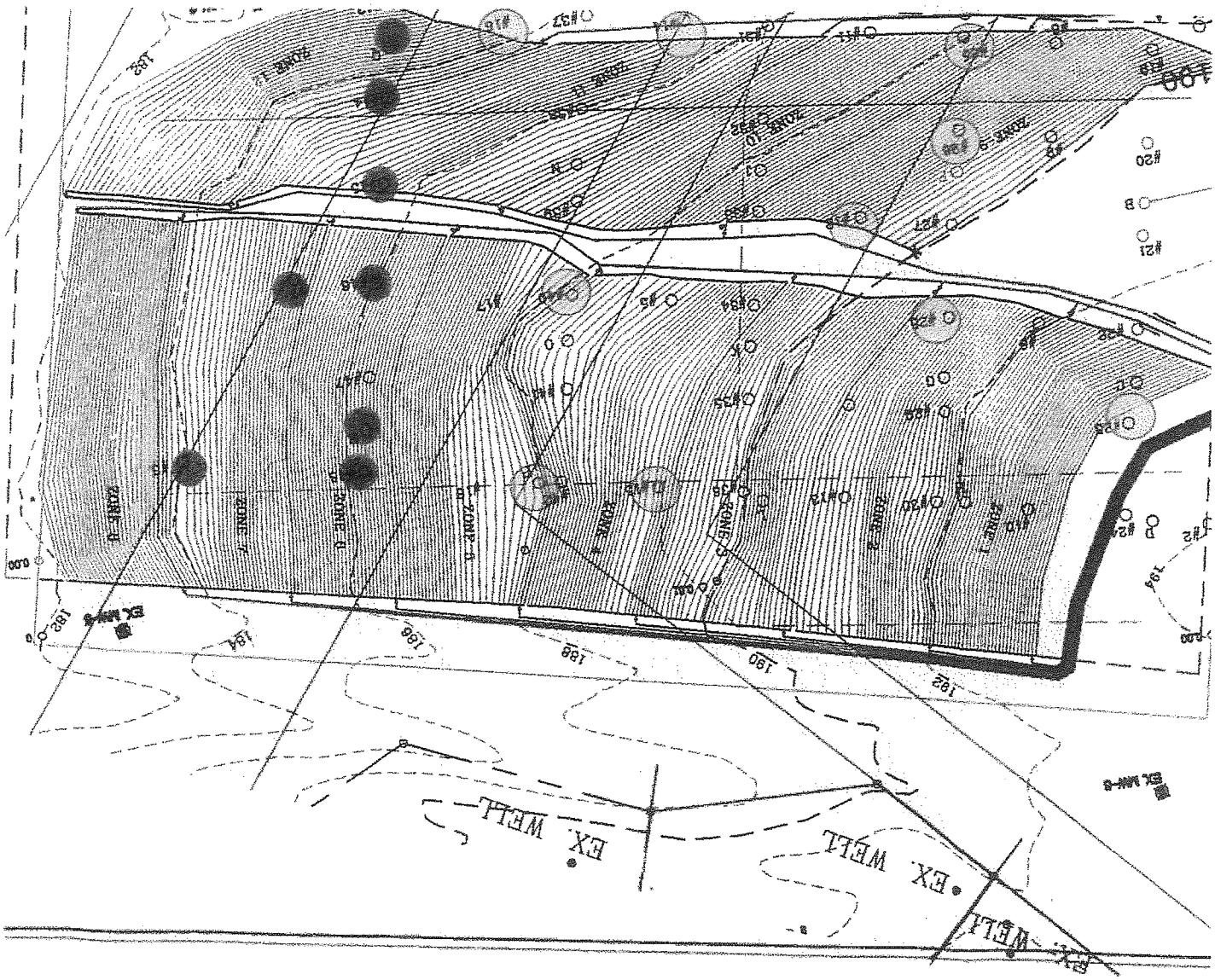
BRISTOW MANOR VPA PERMIT

VICINITY MAP

PROJ. NO: 03215
DWG: VICINITY MAP
DATE: 1/6/04
SCALE: NOT TO SCALE
SECTION II



700 ft Scale: 1 : 19,200 Detail: 13-4 Datum: WGS84


EX. WELL
EX. WELL
EX. WELL
Seasonal Water table 6" - 12"
Season Water table < = 6"

Nutrient Recommendations for Golf Courses

Nitrogen Timing

The beginning and ending dates for application of nitrogen shall be determined using guidance and frost date maps contained in the Season of Application for Nitrogen section, Figures 6-1 and 6-2.

If the full rate or the highest rate of the recommendation range for a monthly application is applied in a single application, then the interval of application for nitrogen shall be at least 30 days to allow turf to utilize previous nitrogen applications. If several applications are to be made for the monthly nitrogen rate, then the timing of the applications shall be at approximately even intervals, with the rate per application to be evenly divided between each application with the total nitrogen applied not to exceed the maximum monthly rate. Use of Water Insoluble Nitrogen forms of Nitrogen is encouraged.

Nitrogen Rates

	Grass Type	Maximum WSN Rate Per Application pounds per 1,000 ft^2	Total Annual N Rate pounds per 1,000 ft^2 [a]
Greens		0.7 [(b)]	3-6
Tees		0.7 [(b)]	2-5
Fairways	Cool Season	0.7 [(c)]	2-3
	Warm Season	0.7 [(c)]	3-4
Fairways - Intensive Management	Cool Season	0.5 [(d)]	3-4
	Warm Season	0.5 [(d)]	3.5-4.5
Overseeding Warm Season Fairways		0.5	1.25
Roughs		0.7 [(e)]	1-3

Fairways-Overseeding Warm Season Fairways

- For warm season grasses, up to 0.7 pounds of nitrogen per 1,000 ft^2 in a 30 day period may be applied in the Fall after perennial ryegrass overseeding is well established. An additional nitrogen application of 0.7 pounds per 1,000 ft^2 may be made in February-March to overseeded perennial ryegrass if growth and color indicate need. Applications using WSN may not exceed 0.7 pounds per 1,000 ft^2 within a 30 day period.

- Soluble nitrogen rates of 0.25 pounds per 1,000 ft^2 or less which may be a component of a pesticide or minor element application, may be applied any time during the application windows described in Recommended Season of Application for Nitrogen Fertilizers of this section, but must be considered with the total annual nitrogen application rate.

(a) Use higher rates for intensively used turf where accelerated growth and/or rapid recovery are required, use lower rates for maintenance of lesser used areas; do not exceed total annual nitrogen levels as stated above.

(b) Greens and Tees - Per application timing must be a minimum of 30 days between applications. A rate of 0.9 pounds per 1,000 ft^2 of total nitrogen may be applied for cool season grasses or 1.0 pounds per 1,000 ft^2 of total nitrogen may be applied for warm season grasses using a material containing slowly available forms of nitrogen.

(c) Fairways-Normal Management (Non-Irrigated or Irrigated) - Per Application timing must be a minimum of 30 days between applications. Total nitrogen application rates of 0.9 pounds per 1,000 ft^2 of total nitrogen may be applied for cool season grasses or 1.0 pound per 1,000 ft^2 of total nitrogen may be applied for warm season grasses using a material containing slowly available forms of nitrogen.

(d) Fairways-Intensive Management (Irrigated) - Per Application timing must be a minimum of 15 days between applications. This option requires optimized timing of more frequent applications of nitrogen with lesser rates per application. Alternatively, a maximum application rate of 0.9 pounds per 1,000 ft^2 of total nitrogen for cool season grasses or 1.0 pounds per 1,000 ft^2 of total nitrogen for warm season grasses using a material containing slowly available forms of nitrogen may be applied with a minimum of 30 days between applications.

(e) Foliar fertilizer may be applied to warm season grasses within 30 days prior to the first killing frost in the fall, at a rate not to exceed 0.1 pounds per 1,000 ft^2 of nitrogen per application. This application must be accounted for in the total annual nitrogen rate.

Phosphorus and Potassium Recommendations for Established Golf Courses

Apply phosphorus (P_2O_5) and potassium (K_2O) fertilizers as indicated by a soil test using the following guidelines:

Soil Test Level	Nutrient Needs (pounds per 1000 ft^2)*	
	P_2O_5	K_2O
L	2-3	2-3
M	1-2	1-2
H	0.5-1	0.5-1
VH	0	0

* For the lower soil test level within a rating, use the higher side of the range and for higher soil test level within a rating use the lower side of the recommendation range.

- For irrigated turf grown on Naturally Occurring and Modified Sand Based soils only, up to 0.5 pounds of P_2O_5 per 1,000 ft^2 may be applied, if needed, to aid in recovery of damaged turf during times of extreme use. No phosphorus applications shall be made when the soil phosphorus test level is above 65% saturation, based on the soil test phosphorus values and region as listed in Table 4-1 of Section IV.

- Avoid the general use of high phosphorus ratio fertilizers such as 10-10-10 or 5-10-10, unless soil tests indicate phosphorus availability below the M+ level.

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a proposed permit from the Department of Environmental Quality that will allow the spray irrigation of treated municipal wastewater in Prince William County, Virginia.

PUBLIC COMMENT PERIOD: TBD to TBD

PERMIT NAME: Virginia Pollution Abatement issued by DEQ, under the authority of the State Water Control Board.

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Bristow Manor Partnership
9058 Copeland Parkway
Bristow, VA 20136
VPA00012

NAME AND ADDRESS OF PERMITTED ACTIVITY: Bristow Manor Golf Club WWTP
11507 Valley View Drive
Bristow, VA 22013

PROJECT DESCRIPTION: The Bristow Manor Partnership has applied for a reissuance of a permit for land irrigation of treated sewage wastewater. The permit will allow the applicant to use treated sewage wastewater for the irrigation of 5.2 acres of land at a controlled rate. DEQ's preliminary decision is to approve the permit. The proposed reissuance consists of establishing standards and monitoring requirements for the following wastewater parameters: Flow, BOD_5, Total Suspended Solids, Oil and Grease, Total Residual Chlorine, *E. coli*, pH, Nitrate and Nitrite-Nitrogen, Total Kjeldahl Nitrogen, Plant Available Nitrogen, Total Phosphorus, Total Potassium, Total Sodium, Total Calcium, Total Magnesium, Sodium Absorption Ratio, Boron, Copper, Iron, Manganese, Zinc, Volume in Storage, System Storage Pond Freeboard, Irrigation Rate, and Total Volume Applied to the 5.2-Acre Spray Field. Additionally, the following groundwater parameters will be monitored: Static Water Level, pH, Conductivity, Chloride, Nitrate and Nitrite-Nitrogen, Alkalinity as Calcium Carbonate, and *E. coli*.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by email, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: Anna Westernik; Northern Regional Office; 13901 Crown Court, Woodbridge, VA, 22193; Phone: 703-583-3837; email: anna.westernik@deq.virginia.gov; Fax: 703-583-3821. The public may review the draft permit and application at the DEQ office named above by appointment or may request electronic copies of the documents from the contact person listed above.